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### ABSTRACT

THESIS: The Predictive Factors of the Promotion of Physical Activity by Air Force Squadron Commanders

STUDENT: Dana L. Whelan

DEGREE: Master of Science

COLLEGE: College of Applied Science and Technology: Fisher Institute for Wellness and Gerontology

DATE: July, 2001

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This research examined the relationship between beliefs about physical activity, physical activity levels, age and the promotional practices for physical activity employed by Air Force squadron commanders. Additionally, differences in levels of promotional practice were evaluated based on group, MAJCOM and rank of the commander. Web based surveys were completed by 178 commanders at bases world-wide.

Positive correlations were observed between physical activity and both personal benefit beliefs and organizational benefit beliefs (.417 and .298,  $p < .001$ , respectively). Using a step-wise linear regression, only age and personal benefit beliefs had small predictive value for promotion practices score ( $R^2 = .063$  for age and personal benefit beliefs combined,  $p < .001$ ). The difference in mean promotion practices score between some MAJCOMs was significant. Open-ended responses provided insight into practices and beliefs.

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PREDICTIVE FACTORS OF THE PROMOTION  
OF PHYSICAL ACTIVITY  
BY AIR FORCE SQUADRON COMMANDERS

A THESIS  
SUBMITTED TO THE GRADUATE SCHOOL  
IN PARTIAL FULFILLMENT FO THE REQUIREMENTS  
FOR THE DEGREE  
MASTER OF SCIENCE  
BY  
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BALL STATE UNIVERSITY

MUNCIE, INDIANA

JULY 2001

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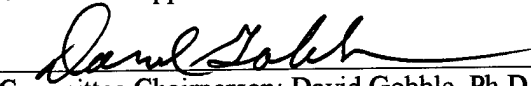
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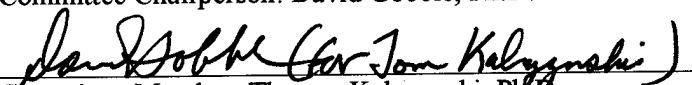
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## Chapter 1: Introduction

The benefits of physical activity have been well documented. Physical inactivity is recognized as a risk factor for chronic diseases such as cardiovascular disease, non-insulin dependent diabetes, hypertension, osteoporosis, depression and obesity. Additionally, physical activity has been shown to improve mood, decrease stress and has been purported to improve productivity. Many worksites take an interest in increasing physical activity of employees to reap these benefits and save health care costs.

The Air Force requires active duty members to maintain a certain level of fitness to support increasing and changing requirements of the Air Force mission. Air Force Instructions guiding fitness and physical activity do not mandate exercise periods, but leave the method and responsibility of achieving and maintaining physical fitness up to each individual. Given the operational importance of fitness to maintain the health of the force and improve readiness capability, lack of physical activity among active duty members is a leadership issue.

Beliefs regarding the benefits of physical activity, known as expectancy outcomes, are common in many behavioral theories. Positive beliefs are often associated with behavior performance. This may be extended to the behavior of promoting physical activity within a worksite. The outcome expectancies of an individual in a leadership position to promote physical activity could be related to their personal behavior and the behavior of their followers through policies and practices supportive of physical activity.

Little is known about Air Force leaderships' beliefs and practices regarding

physical activity and the promotion of physical activity. Many studies have been conducted to evaluate beliefs and identify predictors for physical activity on an individual level. However, the role of leaders promoting physical activity in organizations has not received much attention. Specifically, factors predicting the practices of supporting physical activity of Air Force squadron commanders are not known.

### Statement of Problem

The purpose of this study is to investigate the predictive value of gender, age, cardiovascular fitness in the form of estimated VO<sub>2</sub>, physical activity, personal benefit beliefs, and organizational benefit beliefs on physical activity promotional practices of Air Force squadron commanders. Additionally, the variation in promotional practices between rank, group and major command assignment will be evaluated.

### Research Hypothesis/Questions

Is there a linear combination of the variables gender, age, cardiovascular fitness, physical activity level, personal benefit beliefs, and organizational benefit beliefs of the squadron commander that is a statistically significant predictor (alpha of multiple  $R < .05$ ) of squadron physical activity promotion practices?

What are the variables that are significant predictors (alpha  $< .05$ ) of commanders' physical activity promotion practices within the squadron?

Does variation exist in squadron commander's promotional practices based on the

nominal variables of rank, major command and group assignment?

### Hypothesis

Null Hypothesis: None of the variables (gender, age, cardiovascular fitness, physical activity, personal benefit beliefs, or organizational benefit beliefs) have predictive value for squadron physical activity promotion practices.

Null Hypothesis: No variation in squadron commander's promotional practices exists based on rank, group and major command assignment.

### Definition of terms

Group: The Air Force command and control structure is divided into functional groups. Nearly all Air Force bases have four groups that perform specific mission requirements.

Operations group performs the operational mission of the base.

Logistics group performs the support functions directly related to the mission.

Support group attends to the needs of the base members and dependent community.

Medical group is responsible for providing medical support to military members, their dependents and retirees.

Squadron: Functional units within each group. Personnel administration begins at the squadron level.

Squadron Commander: the individual responsible for the leadership and personnel administration of a squadron.

Rank: Military members receive promotion to rank based on a combination of merit and time in grade. For this study, the ranks of Captain, Major, Lieutenant Colonel, Colonel (in order of progression) were used as a demographic variable.

Major Commands (MAJCOM): organize the Air Force mission into general functions. Several bases make up one of nine commands: Air Education and Training Command, Air Force Material Command, Air Mobility Command, Air Force Space Command, Air Combat Command, Pacific Air Force, United States Air Force Europe, United States Air Force Academy, and Air Force Special Operations Command.

Cycle Ergometry: The cardiovascular component of the Air Force Fitness Assessment is a submaximal estimation of cardio-respiratory fitness using a cycle ergometer.

Estimated V0-2 Max: Individual score derived from the cycle ergometer evaluation; cut-offs for Pass/Fail have been designated based on age and gender categories.

Physical activity: any bodily movement that results in energy expenditure (Wareham, 1998)

Exercise: activity which is planned, structured and repetitive (Wareham, 1998)

Physical fitness: set of outcomes or traits that relate to the ability to perform physical activity (Wareham, 1998)

Cardio-respiratory fitness: health-related component of physical fitness that relates to the ability of the circulatory and respiratory systems to supply oxygen during sustained physical activity (Wareham, 1998)

Readiness: ability to rapidly deploy and meet the needs of theater commanders through organization, training and being equipped to fight, win and survive.

OPSTEMPO: levels of mission demands. High OPSTEMPO is associated with increased deployments and workload.

Weight and Body Fat Management Program (WBFMP): This program requires monitoring and maintenance of weight and body fat standards which are based on gender, age, height, weight and anthropometric taping. Members identified over the standard for body fat may be penalized administratively until the member achieves the standard, or is separated from the Air Force.

Self-Paced Fitness Improvement Program (SFIP): The first phase of intervention for those members who do not meet fitness standards; members are provided an ACSM fitness prescription and are given six months to improve their fitness level before reassessment.

Monitored Fitness Improvement Program (MFIP): The second phase of

intervention for those members who do not meet fitness standards after unsuccessfully completing the SFIP. The individual's activity sessions are monitored for compliance with ACSM's fitness prescription of frequency, intensity, time and type of activity performed. Members are re-evaluated within 6 months of monitoring.

Exempt and waiver status: Some members are not required to perform their annual fitness assessment because of geographical separation from fitness assessment facilities, or medical status. In 1999, approximately 10 % were exempt or waived from annual testing. (Fitness Program Office Statistics, 2000)

Outcome Expectations: the belief that one's efforts will make a difference.

#### Assumptions

1) This research project assumed that squadron commanders used honesty and integrity in completing the survey. The anonymous nature was important because squadron commanders are under significant pressure to practice and support organizational performance issues which include personal physical fitness and support of the Air Force Fitness Program. As an organizational core value, it was expected that commanders responded with integrity.

2) A web-based survey was an appropriate instrument for collecting data relating to beliefs and practices regarding physical activity and the promotion of physical activity.

3) The subjects fully completed and returned the surveys.

4) The constructs about beliefs and promotional practices were valid measures.

5) The data base used to select squadron commanders was complete.

### Limitations

1) Control of prior events affecting subjects' responses and willingness to participate in this study.

2) Cooperation of the subjects to participate in the study by completing and submitting the web based survey.

3) Control of honesty and accuracy of the responses.

4) The beliefs of outcome expectations assessment should not be considered comprehensive. Some specific personal belief items were selected based on previously conducted research (Jaffe, Mahle, Lutter, Rex, Hawkes and Bucaccio, 1999; Steinhardt and Dishman, 1989) and military specific issues stated in Air Force Instructions for fitness and weight management. There may be several other beliefs related to physical activity that could be predictive and may be used to better describe squadron commander's opinions.

5) The description of practices promoting physical activity was limited to those items selected to study. The researcher consulted with Air Force Fitness Program Managers, Squadron Commanders and other Air Force members to make the practices of promoting physical activity evaluation as comprehensive and practical as possible.

6) The sample for this study and the culture in which this research takes place is very unique. Outside of a military environment, specifically the Air Force, there is little application. This specificity served as a limitation for the gathering of background literature as well.

7) The random sampling of squadron commanders (with adequate response rate) was used to minimize concerns of differential selection. Response rate was an analysis consideration because those choosing to complete and return the survey may be different than those who choose not to participate.

#### Importance of the Study

This study was designed to increase the knowledge of squadron leadership factors affecting physical activity in the Air Force. Physical activity has been shown in many studies to influence both personal and organizational health and wellness. The Air Force Instruction regarding fitness leaves the responsibility of maintaining fitness to the individual members. However, leadership behavior, beliefs and practices are important to elucidate and may play a role in the physical activity patterns of individual members.



## Chapter 2: Review of Related Literature

### Introduction

This review synthesizes material relating to the importance of physical activity as an individual and organizational issue, the research involving predictors of physical activity (emphasizing attitudes and beliefs), the practices of promoting physical activity within organizations, and the role of leaders in promoting behaviors. As permitted by available literature, these factors are applied to the United States Air Force. The literature search was conducted using Pub Med, American College of Medicine's research database, and webSPIRS. Information was selected from 1990 forward. References were also selected from applicable research bibliographies.

### Physical Activity

In 1996 a powerful statement regarding the importance of physical activity for the health of the American public was released by the Surgeon General (United States Department of Health and Human Services). The key messages of this report were the importance of physical activity for health and regular, moderate-intensity physical activity recommendations to achieve health benefits for those who get little or no exercise. The Centers for Disease Control and Prevention, in conjunction with the American College of Sports Medicine released the recommendation: "the accumulation of at least 30 minutes of moderate intensity activity on most, preferably all days of the week" (Pate, Pratt, and Blair, 1995). Until this time, the recommendation provided by national organizations such

as the American College of Sports Medicine focused on cardiovascular and fitness benefits derived from at least 20 minutes of vigorous physical activity on 3 or more days a week (American College of Sports Medicine, 1990). The less structured, more liberal recommendations were designed to encourage a larger number of individuals to participate in physical activity on a regular basis in order to improve the health of the nation.

Air Force members are "expected to maintain an adequate level of physical fitness at all times" (Air Force Instruction 40-501, 1998). Member's cardiovascular fitness is evaluated on a yearly basis through submaximal VO-2 testing. Additionally, weight and body fat are measured at least annually. Those not meeting standards for body fat are provided instruction on nutrition and fitness, to promote weight loss. Activity is not mandated, unless the Air Force member repeatedly fails the cardiovascular fitness evaluation, at which time the individual is enrolled in a Fitness Improvement Program. Recommendations are provided according to the more structured and vigorous recommendations to promote fitness enhancement: aerobic activities at an intensity level of 60-90% of member's age-specific maximum heart rate estimate for 20-60 minutes of continuous exercise in the target heart rate zone on a minimum of 3 days per week.

The Surgeon General's report summarized the literature on the role of physical activity in preventing disease. Regular activity has been shown to reduce risk of premature mortality, reduce risks of cardiovascular disease, hypertension, colon cancer,

diabetes mellitus, osteoporosis and obesity. Additionally, regular activity appears to improve quality of life through decreasing depression and anxiety, improving mood and improving one's ability to maintain activities of daily living (USDHHS, 1996).

Employers have become more interested in physical activity levels of employees as data support some claims that physical activity can improve employee health and the company's bottom line. Several outcomes have been studied regarding the influence of worksite physical activity programs. These include: physical activity levels, body mass, body fat, aerobic power, muscular strength, flexibility, prevalence of cardiac risk factors (body fat, blood pressure, serum cholesterol, smoking), life satisfaction and overall well-being (stress, stamina, energy, self-perception, reduced anxiety), injuries and illness (illness absences, medical claims analysis), productivity, absenteeism, and employee turnover (Shephard, 1996; Shephard, 1999). Positive outcomes have been shown for all of the individual factors and many organizational factors.

### Status

Despite the well-documented benefits of physical activity, statistics regarding activity levels reflect the sedentary lifestyle of the nation. National data on physical activity levels come from a variety of self-reported surveys (Morrow, Jackson, Bazaarre, Milne, and Blair, 2000; Brownson, Jones, et al., 2000) and reported rates vary according to survey technique (Sarkin, et. al., 2000). Despite the differences in survey reports, the

consensus is most Americans are not active enough to reap health benefits and even less achieve fitness benefits. The Behavioral Risk Factor Surveillance Survey from 1992, used in the Surgeon General's Report on Physical Activity and Health (USDHHS, 1996), described 28.7% of adults self-reporting no regular activity. Moderate activity on 5 or more days a week for 30 minutes or more, an amount appropriate to achieve health benefits, was reported by 20.1%. Only 14.4% reported vigorous physical activity at a level appropriate to achieve fitness benefits. According to this data, two thirds of Americans do not achieve activity levels to promote health benefits.

Air Force members are responsible to maintain a certain level of physical fitness. According to a survey conducted by the Military Family Institute (Harrison, Brennan, and Levine, 2000), more than one half of the Air Force members surveyed believed they should exercise more often. Fifty percent reported exercising at least three times per week, but 23 percent reported no exercise in a week. This data suggest that Air Force members are more physically active than the American public, but also leaves room for improvement in physical activity levels, given the expectation of a fit force.

#### Theories and Influences

Many factors influence physical activity behavior. Psychosocial variables, as well as demographic differences seem to affect activity levels (Morrow, et al., 1999; Martin, et al., 2000; Sarkin, et al., 2000, USDDHS, 1996). Several psychological models have been

suggested to explain activity patterns. Individual's beliefs about potential outcomes, known as outcome expectations, are central to most theories as a motivational factor. Social Learning Theory developed by Bandura proposes that attitudes related to outcome expectations influence behavior. The belief that positive outcomes can be achieved serves as a motivational factor for the behavior by instilling the belief that one's efforts will make a difference). The Models of Reasoned Action and Planned Behavior also measure beliefs associated with a particular behavior and the evaluation of those beliefs.

The theory of reasoned action purports that the intent to adopt a behavior depends upon an individual's attitude toward performing the behavior and the perceptions of social factors related to performing the behavior (Godin, 1994). The beliefs about perceived consequences and personal evaluation of the consequences of a particular action build the attitude component of the theory. Individuals determine the personal value of particular outcomes associated with particular behaviors. Between 30 and 50 percent of the variance in intention to exercise may be explained through attitude (Godin, 1994; Godin and Kok, 1996). Attitudes and social norms are central to both theories. Social norms describe attitudes of people who are important to the individual. Within a worksite, social norm among managers and co-workers influences behavior through corporate culture. Theory of Planned Behavior includes beliefs of perceived behavior control as a predictor of intention. Perceived behavior control is similar to the concept of self-efficacy, or the

belief that one can successfully perform the behavior. (Lechner, and Devries, 1995).

These theories support that positive beliefs/attitudes are central to changing behavior.

Stages of Change, the Transtheoretical Model, is a useful model to explain the behavior of physical activity. In the transtheoretical model, people move toward routine behavior by passing through sequential steps: precontemplation, contemplation, preparation, action, and maintenance. The stages of change have been evaluated in conjunction with the Theory of Planned Behavior. The constructs of Theory of Planned Behavior have been measured in individuals at each stage of the change process. Beliefs, recognized as attitude, normative and control components, varies with each stage of change. This indicates that certain psychosocial factors and decisional balance are more important in some stages than others. Those with the weakest intention of changing behavior have the most negative attitude toward that behavior. Again, fostering a positive attitude seems important in changing behaviors. (Booth, and Macaskill, 1993; Godin, 1993; Herrick, Stone, and Mettler, 1997; Marcus, and Owens, 1992; Nguyen, Potvin, and Otis, 1997). Implications of this research are that persuasion techniques, advertising and emphasis on benefits of physical activity could be important to move sedentary individuals into to the next stage toward regular activity.

Those who have an overall positive attitude that activity will lead to positive outcomes such as increased productivity, weight loss, improved well being and decreased

stress are more likely to adhere to activity programs (Lechner, and DeVries, 1995). According to a study conducted by Martin, Morrow, Allen, Jackson and Dunn (2000), self-reported activity level varied significantly by perceived importance of physical activity and gender. Perceived importance of physical inactivity as a health risk and perceived benefits of performing a behavior are factors supported by the previously mentioned theoretical models describing the influence of beliefs on health behavior.

Although several factors influence physical activity patterns, research testing the social learning theory, theory of reasoned action and planned behavior indicate that the attitudes and beliefs about potential outcomes is a predictor of behavior. Research using the stages of change model demonstrates the value of promoting positive beliefs about physical activity to move people in the early stages of change closer to action. Finally, the perceived importance of physical activity may predict behavior. Those who have more positive beliefs and perceive physical activity as important are more likely to participate in physical activity.

#### Worksite Issues

In attempts to increase physical activity levels of employees, employers may provide support to employees in various ways to include: on-site facilities, flex time, explicit management support, recognition of activity efforts (King, Jeffrey, Fridinger, Dusenbuy, Provence, Hedlund, and Spangler, 1995). People with more positive outcome

expectancies regarding physical activity are more likely to support worksite policies (Brownson, and Schmid, et al, 1998).

The perceived barriers to physical activity also seem to influence behavior. Several studies have attempted to identify the significant barriers that discourage physical activity. Lack of time is routinely cited as a significant barrier (Jaffee, et.al., 1999; Marks and Rippe, 1997; Brownson, et. al., 1998, Godin, et.al., 1994). Flex time at the worksite has been proposed to minimize the barrier of time and has been adopted by some employers. This type of policy has been shown to improve job satisfaction and increase levels of activity. (Ribisl, and Reischl, 1993; Linengar, Chesson, and Nice, 1991). Mandated exercise periods in a military environment significantly increase activity levels (Harrison, Breenan, and Levine, 2000).

Within the social context, leaders play a role in promoting behavior in an organization. Leaders serve as role models, communicate values, and determine priority areas on which to focus resources of time, money and expertise (Hammond, Leonard, and Fridinger, 2000, Heskett and Schlesinger, 1997; Nystrom, 1993). Successful leaders systematically approach those things which are important to them by measuring, controlling and rewarding those behaviors they deem important (Schein, 1992). The beliefs of professionals in leadership roles may influence these behaviors in several settings.



No research regarding beliefs and promotion of physical activity has been published. However, other professions have studied the role of beliefs in professional behavior and performance. Within an educational setting, teacher's belief systems influence their curricular and instructional decisions and ultimately student learning (Parajes, 1992). Beliefs regarding expected outcomes influence the support of policies by teachers (Wishnick and Wishnick, 1998). Manager's attitudes influence outcomes training programs and performance of teams (Randall, 1976). This premise supports that the beliefs and attitudes of professionals impact their behavior and outcomes related to that behavior.

Relating specifically to physical activity, the research is less clear. Despite physicians' beliefs that physical activity promotion is important in primary care setting, the majority of physicians do not give advice about physical activity to patients (Lawlor, Keen, and Neal, 1998). However, those who are physically active themselves are more likely to counsel patients on physical activity (Abramson, Stein, Schaufele, Frats, and Rogan, 2000). These studies suggest that outcome expectancy beliefs influence personal behavior, but may not always correlate with professional behavior.

## Chapter III: Methodology

### Introduction

This chapter describes study methodology used in this research. The subjects, instruments used, and procedures are explained. Additionally, the research design and data analysis techniques are described.

### Subjects

The researcher attempted to obtain a probability sample of all Air Force squadron commanders. Squadron commanders provide leadership and administrative oversight to squadron members. Commanders must be officers and therefore all have an undergraduate degree. Demographic data is available for Air Force officers (Air Force Personnel Center, 2001), but not specifically for squadron commanders. Squadron commanders are selected from this pool of officers. Females represent 17.2 % of officers. Regarding ethnicity, 85% of officers are Caucasian, 6.5 % are black, 2.3% are Hispanic and 6 % represent an "other" category. Exact data is not available, but a strong majority of squadron commanders have completed advanced military schooling through Professional Military Education such as Squadron Officer School and Air Command and Staff College. Field grade officers who have the rank of Major, Lieutenant Colonels, and Colonels are well educated with 90% having advanced degrees. The sample frame of 1200 squadron commanders was provided by the Air Force Office for Prevention and Health Services Prevention.

### Instrument

The anonymous survey addressed the following issues:

#### 1) Demographics

a) MAJCOM assignment (Air Combat Command, Air Mobility Command, Air Force Material Command, Air Force Space Command, Air Education and Training Command, United States Air Force Europe, Pacific Air Force, Air Force Special Operations Command, United States Air Force Academy)

b) Group assignment (Operations, Logistics, Support, or Medical)

c) Rank

d) Gender

e) Age

#### 2) Self-reported fitness level: Members perform a cycle ergometry test annually.

Exemptions and waivers from testing do occasionally occur for medical reasons, such as pregnancy, long-term use of heart rate altering medications, etc. Approximately 10 % of Active Duty members are exempt or waived from testing. For those who complete the process, members receive an assessment evaluation which includes their estimated VO-2 maximum score, the ranking of their score as compared to others of the same gender and age range, and their Pass/Fail categorization for program administration. Ideally, the actual value would be obtained from the Fitness Program Office. To maintain anonymity

of respondents, self-reported data was collected. Although this information may be difficult for the typical person to recall accurately, a small, informal sample of squadron commanders and military members were able to recall their scores. Accuracy was not verified. Squadron commanders tend to be competitive and may be more attentive to performance/evaluations.

3) Physical activity patterns: The physical activity assessment component has been used by Morrow, Jackson, Bazzarre, Milne, and Blair in a follow-up study to the Surgeon General's Report (1999). The questions were developed with input from many experts in physical activity research to include: the National Coalition of Promoting Physical Activity; the American College of Sports Medicine; the American Heart Association; the American Alliance for Health, Physical Education, Recreation and Dance; the Association for Worksite Health Promotion; and the International Health, Racquet & Sportsclub Association. This portion of the survey was modified from a lengthier telephone survey to a self-administered form. Frequency for both moderate and vigorous activity was identified and ranked according to a sequential increase in activity from almost never to 5 or more days per week. Because the guidelines provided to Air Force members follow ACSM's fitness enhancement recommendations for 20 minutes or greater of vigorous physical activity, the vigorous activity section was changed from 30 minutes to 20 minutes to reflect the guidelines of ACSM and those provided to Air Force members. Activities

listed attempted to reflect the types of activity typically performed by this population. Determinations as to moderate or vigorous activity were made using Ainsworth's Compendium of Physical Activities (2000) and correlate well with other survey research on this topic (Sarkin, et al., 2000). Activities categorized as moderate were approximately six metabolic equivalents activities and those categorized as vigorous were seven or more metabolic equivalents. Using average metabolic equivalents for each category and duration, a ratio was developed to appropriately assign point values to each response. Scores range from 0 to 7.5 and ranked respondents based on frequency and intensity of activity for the designated minimum duration. Moderate and vigorous activity scores were combined for an overall point total.

Because the Air Force Fitness Program tests individuals on an annual basis, and individuals often know months in advance when their test will be accomplished, cyclic patterns of activity may exist, as members prepare for their assessments. The fitness assessment questions also addressed maintenance issues. Individuals who have maintained physical activity for a period of 1-6 months and 7 or more months were identified.

Several instruments were reviewed for the physical activity assessment. Although other tools have proven validity and reliability, these more comprehensive assessments were impractical for this study. Because commanders are very busy, a short yet comprehensive assessment tool was selected.

4) Beliefs about physical activity for personal benefit were measured using a seven point Likert scale. Common wellness related potential benefits of physical activity and military specific criteria were evaluated in the form of outcome expectations. Nine statements were averaged and evaluated as a total belief score. The range of possible scores was from 0 to 7.

5) Beliefs about physical activity for organizational benefit were measured using a seven point Likert scale and were based, in part, on the benefits proposed in Air Force Instructions. Eight statements were evaluated. Also, those factors matching the personal beliefs section that could be evaluated by a commander regarding squadron members were used. The average score of the eight statement responses could range from 0 to 7.

6) Promotion of physical activity within the squadron using a range of potential promotional practices were selected based on input from base fitness program managers, squadron commanders and other Air Force members. These practices were also reviewed by the AF Fitness Program Office. Included in this assessment were practices for members who would particularly benefit from physical activity because of failure to meet standards for fitness or weight. An individual score was compiled for each commander based on the number of "yes" responses. The potential range for scores was from 0 to 11. A higher value indicated a greater level of support for physical activity for squadron members.

### Procedures

Subjects were systematically selected from the pool of all squadron commanders using a listing of 1200 squadrons provided by the Office for Prevention and Health Services Assessment. Every third squadron was selected from the list. All commanders with their squadron address in the global e-mail address book were subject to being selected. If the selected squadron e-mail address were not available in global e-mail, the next squadron was selected. For those MAJCOMS not available of global e-mail, public affairs representatives at bases within that MAJCOM were asked to provide the appropriate e-mail addresses. 295 completed surveys were needed to complete descriptive statistics. However, predictive factors could be determined with 160 completed surveys or more. Using the Air Force Global address-book, requests to complete the survey with a hyperlink to the web survey were to be e-mailed to 450 squadron commanders, in hopes of receiving 295 completed surveys.

### Research Design

This predictive correlational design was used to examine the patterns of correlation between the variables described above and the criterion variable of promotional practices of squadron commanders. Nominal data such as rank, group assignment and MAJCOM assignment were handled using descriptive techniques.

### Data Analysis

Statistical Package for the Social Sciences software was used to analyze the data. A step-wise linear regression analyzed the ordinal data to identify and rank predictors of squadron commander's physical activity promotion practices. Nominal data was analyzed using t-tests to identify if differences existed in promotional practices based on these variables.



## Chapter 4: Results

### Subjects

Out of the 294 survey requests sent, 178 individuals responded yielding a 61 percent response rate. Individual item response was very good, with only two questions yielding a significant number of non-responses. These items were regarding maintenance of physical activity levels and certainty of recall of fitness assessment scores. Distribution of respondents across the three groups of operations, logistics, and support, was fairly equal. As shown in Table 1, squadron commanders in medical groups had a lower number of respondents. Because e-mail addresses were not consistently available for medical squadron commanders, but were available for medical group commanders, group commanders were asked to forward the request to the selected squadron commanders. This extra step in the contact chain may have contributed to the lower overall responses from medical squadron commanders.

Demographic and categorical characteristics of the sample appear in Table 1. Nearly two-thirds of squadron commanders responding to this survey were lieutenant colonels. Majors comprised one-third of the sample and those remaining were colonels. Females represented 11.3% of respondents. Because a relatively small number of women were represented in the sample, gender was not used as a variable in any analysis.

Table 1

Sample Characteristics

Variable	Number (total = 178)	% total respondents
<b>Group</b>		
Operations	44	24.7
Logistics	49	27.5
Support	54	30.3
Medical	18	10.1
Other	13	7.3
<b>MAJCOM</b>		
ACC	84	47.2
AETC	21	11.8
AFMC	11	6.2
AFSOC	1	.6
AFSPC	15	8.4
AMC	6	3.4
PACAF	26	14.6
USAFE	12	6.7
Other	2	1.1
<b>Rank</b>		
Major	54	30.3
Lt Colonel	114	64.0
Colonel	10	5.6
<b>Gender</b>		
Male	157	88.7
Female	20	11.3

Poor distribution across commands reflects the lack of access to e-mail addresses in Air Force Institute of Technology Global E-mail. The sampling and response data across the MAJCOMs appear in Table 2. ACC and PACAF were well represented in Global E-mail. Addresses for the other commands were solicited through base public affairs representatives. Low sampling in these commands was caused by the lack of responses from public affairs representatives. An additional request and deadline extension was sent to USAFE and AFSPC to encourage more responses from these commands.

Table 2

Distribution of Sampling and Response Rate Across MAJCOMS

MAJCOM	Commanders in database	Number sent requests	Number responding	Response Rate (%)
Total	1200	294	178	61
ACC	326	114	84	74
AETC	102	29	21	73
AFMC	217	35	11	31
AFSOC	34	6	1	17
AFSPC	67	31	15	48
AMC	121	9	6	66
PACAF	172	39	26	66
USAFE	136	31	12	39
USAFA	9	0	0	-
Other	16	0	2	-

The range of ages reported were from 32 to 58 years of age ( $\underline{M} = 41.8$ ;  $\underline{SD} = 4.27$ ). Although there is no data source available to verify that this sample is similar to the population of squadron commanders, none of the sample characteristics appear unusual.

#### Reported Activity Levels

Squadron commanders reported a mean value for 30 minutes of moderate activity that correlates to between twice per week and 3-4 times per week frequency. The mean value for 20 minutes of vigorous activity correlated to 3-4 times per week frequency. Physical activity levels for both moderate and vigorous activity combined were reported across the entire range of possible values. The minimum of 0 represented responses of almost never for both moderate and vigorous activity. The maximum of 12.5 represented 5 or more times per week for both moderate and vigorous activity, ( $\underline{M} = 6.4$ ,  $\underline{SD} = 3.52$ ). Table 3 displays frequency data for vigorous and moderate activity.

Squadron commanders reported moderate levels of physical activity five or more times per week in 19.1% of the responses. Squadron commanders reported vigorous activity 3 or more times per week in 52.2% of responses. One quarter of commanders reported total levels of moderate and vigorous physical activity which do not meet guidelines for health or fitness.

Commanders reported maintaining their activity levels for a period of 7 months or

more in four-fifths of responses. One fifth reported maintaining current activity levels for a period of 1-6 months. Six individuals did not respond to the item.

Table 3

Frequency of Participation in Vigorous and Moderate Activity Levels

Vigorous Exercise	Frequency	%
Almost never	23	12.9
Twice per month	9	5.1
Once per week	16	9.0
Twice per week	37	20.8
3-4 times per week	67	37.6
5 or more times per week	26	14.5
Moderate Exercise		
Almost never	16	9
Twice per month	6	3.4
Once per week	18	10.1
Twice per week	41	23
3-4 times per week	63	35.4
5 or more times per week	34	19.1

\*Minimum duration was 20 minutes for vigorous activity and 30 minutes for moderate activity.

## Statistical Analysis

### Scale Reliability

The scales used to measure personal benefit beliefs, organizational benefit beliefs and promotional practice scores were reliability tested by computing a Cronbach's coefficient alpha. All items in both belief scales remained in the final scale and reliability coefficients were  $\alpha = .871$  for personal benefit beliefs and  $\alpha = .898$  for organizational benefit beliefs. Two items, pertaining to providing rewards for physical activity and fitness, were removed from the promotional practices scale to improve the reliability and yield an  $\alpha = .6890$ .

A stepwise linear regression was used to identify which variables could predict the physical activity promotion score. The regression analysis criteria was probability of F to enter  $\leq 0.05$ , probability of F to remove  $\geq 0.100$ . Pearson correlations were calculated to identify relationships between the variables used in the linear regression.

Oneway ANOVA was conducted to determine if differences existed between groups, and MAJCOMs. Also, Scheffe post-hoc analysis were employed to investigate differences between MAJCOM's promotion practices scores. A t-test for Equality of Means identified if differences existed between rank for promotional practices.

### Scale Scores

Personal benefit beliefs of squadron commanders' scores ranged from 4 to 7 ( $\underline{M} = 6.45$ ,  $\underline{SD} = .599$ ). The scores for organizational benefit beliefs ranged from 3.75 to 7.0 ( $\underline{M} = 6.25$ ,  $\underline{SD} = .682$ .) The means for both items fell between agree, which had a value of 6, and strongly agree, which had a value of 7. Scores for the physical activity promotion practices instrument are presented by group and MAJCOM in Table 4. For all commanders combined, physical activity promotional practices of squadron commanders ranged from 2 to 9, ( $\underline{M} = 7.05$ ,  $\underline{SD} = 1.81$ ).

Table 4

#### Range and Mean of Promotional Practices Scores Across Group and MAJCOM

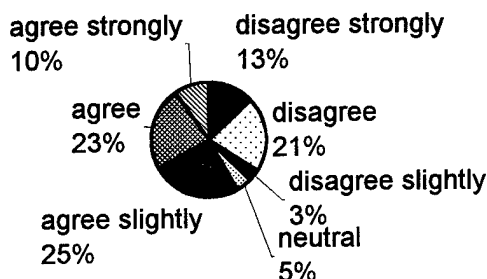
Group	Range	<u>n</u>	<u>M</u>	<u>SD</u>
Operations	3-9	44	6.82	1.40
Logistics	2-9	49	6.84	1.92
Support	2-9	54	7.43	1.89
Medical	3-9	18	6.28	1.81
MAJCOM				
ACC	3-9	84	7.26	1.56
AETC	4-9	21	7.71	1.49
AFSPC	3-9	15	7.40	1.68
PACAF	2-9	26	6.08	2.19

### Cycle Ergometry Assessments

Responses to the statement "I increase my activity level prior to my annual fitness assessment." are displayed in Figure 1. Those reporting that they did not test was 3 percent. Fail rate was 4 percent and 93 percent reported passing their most recent cycle ergometry test. Slightly more reported passing their assessment and fewer did not test than the general Air Force population (Fitness Program Office, 1999). When asked about their cycle ergometry test score, 79% of respondents were certain or very certain that they accurately recalled their score. A secondary analysis was conducted using those who reported certain or very certain recall of their test score. This analysis used recalled scores as a variable in the regression to identify predictors of promotional practice scores. In addition to those who reported uncertain recall of their score, 11 subjects were discarded from the regression because they did not respond to the item.

Figure 1.

Response to "I increase in level of activity prior to my annual assessment."





For those who were certain or very certain of their cycle ergometry test scores, 61.8 % reported scores in the categories of 31-35 and 36-40. 12.1 % reported scores below and 23.6% reported scores above these groups. Scores required to pass the assessment vary with age of the respondent.

### Analysis

#### Primary Analysis

Pearson Correlations were calculated between independent and dependent variables, yielding some significant correlations. The strongest correlation was between personal benefit beliefs and organizational benefit beliefs (.677,  $p < .001$ ). Personal benefit beliefs also correlated with the physical activity level of the commander (.417,  $p < .001$ ). The relationship between organizational benefit beliefs and activity levels of commanders was not as strong, but significant (.298,  $p < .001$ ). There was an inverse correlation between age and activity promotion practices of commanders (-.204,  $p < .05$ ). The weakest statistically significant correlation was between personal benefit beliefs and the activity promotion practices of the commander (.106,  $p < .05$ ). Table 5 displays all of the correlation statistics for these variables.

Table 5

Pearson Correlations Between Variables in Primary Analysis

Variables	Physical Activity	Age	Personal Beliefs	Organizational Beliefs	Promotion Practices
Physical Activity	1.000	-.029	.417***	.298***	.105
Age		1.000	-.045	-.023	-.204**
Personal Beliefs			1.000	.677***	.160*
Organization Beliefs				1.000	.133
Promotion Practices					1.000

Note. N = 178 for all variables except age, which is based on 177 responses.

\*  $p < 0.05$ , two-tailed, \*\*  $p < 0.01$ , two-tailed, \*\*\*  $p < 0.001$ , two-tailed

The stepwise linear regression identified two variables that had value in predicting the criterion variable of promotional practices of squadron commanders. Table 6 presents the Regression Model Summary. The primary analysis included the independent variables of total activity level, age, personal benefit beliefs, organizational benefit beliefs, and the dependent variable of promotional practices. By itself, age predicted 4% of promotional practices. In combination with personal benefit beliefs, 6% of the promotional practices score could be predicted.

Table 6

Linear Regression Model Summary for Primary Analysis

	Coef(B)R	R-square	F for Model	t	sig(t)
<b>MODEL 1</b>		.204	.042	F(1,175)=7.63, p <.01	
(Constant)	10.650			8.10	<.01
Age	-.087			-2.76	<.01
<b>MODEL 2</b>		.252	.063	F(2,174) = 5.90, p <.01	
(Constant)	7.680			3.89	<.01
Age	-.084			-2.69	<.01
Personal benefit beliefs	.444			2.01	<.05

Secondary Analysis

A secondary analysis was conducted using the additional independent variable of self-reported fitness assessment score. The eleven respondents who did not submit scores and those who reported uncertain recall of their score were excluded from the sample, leaving  $n = 121$ . Results were very similar to the primary analysis, except that age and organizational benefit beliefs were identified as predictors of promotional practices score. Table 7 shows the regression model. Age predicted 4% of the promotional practice score and age with organizational benefits predicted 7% of the promotional practice score.

Table 7

Linear Regression Model Summary for Secondary Analysis

	Coef(B)	R	R-square	F for Model	t	sig(t)
MODEL 1		.201	.040	F(1,120) = 5.06, p<.01		
(Constant)	10.643				6.72	<.001
Age	-.085				-2.25	<.01
MODEL 2		.267	.071	F(2,119) = 4.55, p<.01		
(Constant)	7.536				3.40	=.001
Age	-.083				-2.22	<.05
Personal Benefit Beliefs	.483				1.98	=.05

Pearson's correlations illustrate relationships very similar to those in the primary analysis. In addition, personal benefit beliefs, organizational benefit beliefs, and physical activity level of commanders correlated with a level of statistical significance with the self reported fitness assessment score (.288,  $p < .05$ ; .229,  $p < .05$ ; .360,  $p < .001$ . respectively), as shown in Table 8.

Table 8

Pearson Correlations Between Variables in Secondary Analysis

Variables	Physical Activity	Fitness Score	Age	Personal Beliefs	Organization Beliefs	Promotion Practices
Physical Activity	1.000	.360***	-.047	.423***	.230**	.173*
Fitness Score		1.000	-.174	.288**	.229*	.148
Age			1.000	-.051	-.005	-.210*
Personal Beliefs				1.000	.663*	.151
Organization Beliefs					1.000	.175*
Promotion Practices						1.000

Note. N = 132 for all correlations except those including age, which are N = 131 and those including reported assessment score which are N = 123. Those using age and reported score are N = 122.

\*  $p < 0.05$ , two-tailed, \*\* $p < 0.01$ , two-tailed, \*\*\* $p < 0.001$ , two-tailed

Comparisons between squadron commander promotional practices based on group membership and MAJCOM membership were conducted and are presented in Table 4.

Support squadrons had the highest mean score for promotional practices, and medical groups had the lowest mean score. However, ANOVA analysis produced statistically insignificant differences.  $F(3, 164) = 2.27$ ,  $p = .083$ .

Comparisons between MAJCOMS were conducted on those MAJCOMS with more than 15 respondents and a response rate of 48% or higher. A Oneway ANOVA

across 4 MAJCOMS resulted in statistically significant differences in promotional practice scores.  $F(3, 142) = 4.52, p < .05$ . Using a Scheffe post hoc multiple comparison test, the promotional practices score of squadron commanders from PACAF was lower than the scores from commanders in ACC or AETC, with the mean difference being significant at the .05 level.

Variation based on rank was analyzed using a t-test. Respondent numbers for the rank of colonel ( $n = 10$ ) were too small to include in the analysis. However, for the ranks of major and lieutenant colonel, there was no statistical difference in the mean score for promotional practices, 7.074 and 7.158 respectively.

#### Open Ended Responses

Squadron Commander's had the opportunity to respond to an open-ended item by describing any practices they used to promote physical activity and their thoughts on the role of a squadron commander in promoting physical activity and physical fitness of squadron members. Responses were categorized into the four main subject areas of 1) policies, 2) personal practices and leading by example, 3) Air Force Policies, and 4) OPSTEMPO and barriers. Comments are displayed in Appendix A, by category. Subjective responses indicate that several commanders provide policies in support of physical activity for their members. Although rewarding physical activity and fitness were items thrown out of the promotional practices scale for the statistical analysis, the

subjective section captured some of these practices. Operational demands constrain some commanders from providing more supportive policies. Shift work schedules and particular occupations are not amenable to the provision of time to participate in activity during scheduled work periods. Some squadron commanders report their schedules as commanders limit their ability to be as physically active as they would like and others commented on the importance of being physically active as a method of leading by example. Several opinions were provided by commanders about the Air Force Fitness Program. Seventeen comments indicated lack of confidence or unfavorable opinions about the assessment method. The Air Force Fitness Program was not solicited as a topic to address specifically.

## Chapter 5: Discussion

Results of this study provide insight into several facets of Air Force squadron commander's beliefs and practices regarding physical activity for both themselves and their squadron members.

### Distributions

Outside of the lack of distribution across all MAJCOMs and the lower representation of medical group commanders, the distribution across the remaining groups, ranks and gender are generally reflective of the population. Because there were differences found between MAJCOMs, the results of this study are strictly limited to those surveyed and can not be extrapolated to the population of Air Force squadron commanders in general.

### Activity Levels

One quarter of squadron commanders appear to be inactive at levels which do not meet guidelines for health or fitness benefits. This corroborates another report of Air Force member's activity levels (Harrison, 2000). Nearly 20% of squadron commanders reported moderate activity which meets the CDC recommendation to achieve health benefits and 50% perform vigorous activity at a level which meets ACSM guidelines for fitness enhancement. Squadron commander's activity level appears to be significantly higher than the general population, particularly for vigorous activity levels (Morrow, 2000). The mean score of commanders indicate combinations of moderate and vigorous activity which meet at least health benefit criteria. However, those completing this survey



may be likely to have higher activity levels than those who chose not to respond.

Physical activity levels are difficult to assess accurately. In the general public, seasonal factors influence cyclic patterns of activity (Kriska, A. M., and Caspersen, C. J., 1997). In addition, the annual assessment of fitness also appears to influence physical activity levels, with more than half of commanders reportedly increasing activity levels prior to their assessment. Responses regarding the maintenance of activity patterns over the last 1-6 months and 7 months or more contradict cyclic patterns with 80% reporting maintaining their activity behavior for more than a 7 month period of time. It is not known in which direction activity levels changed in the 20% reporting current patterns for a one to six month period. Activity levels may have either increased or decreased. Research in maintenance of physical activity indicates that half of the people who initiate exercise programs drop out during the first 3-6 months (Martin, 2000). Data provided in this survey appear to find relatively stable activity levels, with increases prior to annual fitness assessments.

#### Beliefs and Practices

As may be expected, beliefs regarding physical activity were very positive, with mean scores for both personal and organizational benefits averaging between agree and strongly agree and a small range for the standard deviation. Additionally, scores for promotional practices were quite high, with a mean score of 7 out of a maximum of 9.

This value, as well as the beliefs values, may be skewed from the actual practices and beliefs of all squadron commanders because those responding to the survey may be more interested in physical activity and be more likely to have supportive practices.

Additionally, two items related to rewarding physical activity and fitness were discarded from the statistical analysis because the reliability of the scale improved with their removal. The inclusion of these two items may make the overall score a better reflection of what squadron commanders are doing to support physical activity. Open-ended responses did indicate that some commanders do reward members for physical activity and physical fitness.

#### Correlations and Regressions

In answer to the primary research questions, age and personal benefit beliefs did predict a small amount of the promotion practice score of Air Force squadron commanders, while organizational benefit beliefs, physical activity level and fitness assessment score did not. Age is a slightly stronger predictor than personal benefit beliefs. The primary analysis identifying the predictor variables associated with the promotional practice score for squadron commanders indicate that age and personal benefit beliefs together predict 6% of the promotional practice score, while organizational benefit beliefs and physical activity level in the way these factors were assessed in this study do not have predictive value in the primary model.

The secondary model added self-reported fitness scores as a variable. Because the sample size decreased by over 50 respondents in this model, and fitness scores were not identified as a predictor variable, it is not the strongest model of the two. However, using this model, age remained a predictor variable, and organizational benefit beliefs replaced personal benefit beliefs, with the ability to predict 7% of the promotion score.

The ability of age to predict 4% of the promotional practices score in both models does not lend itself to easy explanation. Age was slightly inversely correlated with both belief scales, and physical activity levels, but activity level was the only statistically significant correlation of the three variables. Physical activity research strongly supports the relationship between age and activity levels, as well as aging and beliefs about physical activity (DHHS, 1996; Lachman, M. E, and Jette, A., 1997). However, the research related to beliefs about physical activity and age by Lachman identifies that as age increases, feelings of self-efficacy and control related to physical activity decrease. These factors seem to influence the individual's beliefs and physical activity levels in older people. This research may not be applicable to Air Force squadron commanders, given the relatively young mean age of the sample. Other variables may come into play when considering age as a predictive factor. Level of responsibility, military experience, and other unknown factors that relate to the age of the squadron commander may contribute to an explanation.

Results of the regression indicate the factors identified for this research do not explain much of the variance in promotional practices of commanders. Within other professions, such as education and management, stronger correlations have been found between beliefs and practices (Randall, 1976; Parajes, 1992; Wishnick and Wishnick, 1998). Within the realm of physical activity, the research is less strong. The promotion of physical activity to patients by physicians was not correlated with beliefs (Lawlor, et al., 1998) but was correlated with personal physical activity behavior of the physician (Abramson, et. al., 2000). This indicates that within a professional setting, promotional practices may be influenced by more powerful factors than beliefs alone. Only in the correlations conducted in the secondary analysis did physical activity behavior appear weakly, but statistically significantly correlated with promotion practices.

The theory of planned behavior, which considers subjective norms and perceived behavioral control as important factors in influencing behavior, may be a useful model to better predict promotion practices scores, as pointed out by a commander in the open ended response about the perceived negative peer attitude toward those commanders with aggressive physical activity policies. A better analysis of variance between MAJCOM commanders may support the concept that subjective norm influences behavior.

In answer to the final research question, there were statistically significant differences in promotion practice scores based on MAJCOM assignment, but not group

assignment or rank. Using the available data, this study did demonstrate significant variance between one of four commands. PACAF had overall lower promotion practices scores than the other commands. Subjective comments from commanders in PACAF lend themselves to the role of workload as a barrier to promoting physical activity. However, commanders from other commands reported workload as a barrier as well. Several factors could contribute to this variance to include: social norms, leadership behavior at levels higher than squadron commanders regarding activity and promotion of activity, workload and staffing levels in the command.

Although differences in promotional practice scores between groups were not statistically significant, social norms, leadership behavior at levels higher than squadron commanders regarding activity and promotion of activity, workload and staffing levels in functional areas may also explain variation between group assignment.

The strongest correlation, which was between personal and organizational beliefs, is not surprising since the majority of statements in the two scales were identical statements except as they related to the individual commander and airmen in the squadron. The correlations between both belief scales and physical activity were not strong, but significant. The stronger of the two, personal benefit beliefs, supports other research indicating that positive attitudes about physical activity influence behavior (Jaffe, et. al., 1999; Lechner, et. al., 1995; Nguyen, et al., 1997; Smith, et al., 1999; and Steinhardt, et. al.,

1989). No research is available to compare organizational benefit beliefs.

Despite well supported research that age influences physical activity levels, this study did not find a statistically significant relationship (DHHS, 1996). This population differs from the general public and therefore, age may not have the same influence on activity as reported previously for other populations.

#### Recommendations for future research

Because little research has been conducted in this area, there are many opportunities to improve knowledge about physical activity and leadership in military populations. Results from this study provide a launching point to expand understanding. Only beliefs about benefits and outcome expectancies of physical activity were evaluated. Other research supports the role of both pro and con beliefs in influencing behavior. Because the benefit beliefs were strongly positive, with little variation, beliefs about barriers and cons to physical activity and promoting physical activity may help explain squadron commander behavior.

This study identified that the independent variables, as measured in this study, were not effective in explaining behavior. Organizational variables may better explain leadership behavior in promoting physical activity. These may include such as staffing levels, size of squadron, mix between civilian and military staffing, mission requirements, and higher leadership's influence.

The theory of planned behavior could be tested, which would provide information about the relationships between subjective norms, attitudes and perceived behavioral control. Social norms may be a powerful predictor of squadron commander behavior. Data from this study indicate that many commanders leave the responsibility of physical activity up to the individual squadron member. Therefore, understanding social norms of squadron members may also be important in the overall goal of increasing physical activity.

The ultimate goal of this research is to identify ways to increase the level of physical activity and therefore fitness of Air Force members. This study only focused on one potential influence on physical activity. Data from this study indicate that some squadron commanders are actively promoting physical activity. Further research should be done to identify the most effective ways to promote physical activity among Air Force members.

Finally, the open-ended response section provided insight that some commanders are not confident in the current physical fitness assessment procedures. The recurring comments about the Air Force Fitness Program are noteworthy because this was not a topic that they were asked to address. This, in conjunction with the reports of increased activity levels prior to annual testing warrant further investigation into the Air Force Fitness Program. Although not central to the research hypothesis, these findings seem to

undermine the purpose of the Air Force Fitness Program which is to encourage year-round activity.



## References

Air Force Personnel Center. (2001). Services Demographics Offer Snapshot of Force. [On-line] Available: <http://www.afpc.randolph.af.mil/pubaffairs/release/2001/01/Jan2001/demographics.htm>

Abramson, S., Stein, J., Schaufele, M., Frates, E., and Rogan, S. (2000) Personal exercise habits and counseling practices of primary care physicians. Clinical Journal of Sports Medicine, 10, (1), 40-48.

American College of Sports Medicine. (1990). Position Stand: The recommended quantity and quality of exercise for developing and maintaining cardiorespiratory and muscular fitness in healthy adults. Medicine and Science in Sports and Exercise, 22, 265-274.

Ainsworth, B.E., Haskell, W. L., Whitt, M. C., Irwin, M. L., Swartz, A. M., Strath, S. J., O'brien, W. L., Bassett, D. R. jr., Schmitz, K. H., Emplaincourt, P, O., Jacobs, D. R., jr., Leon, A. S. (2000). Compendium of Physical Activities: an update of activity codes and MET intensities. Medicine & Science in Sports & Exercise. 32, (9) S498-S516.

Booth, M. L., and Macaskill, P. (1993). Population prevalence and correlates of stages of change in physical activity. Health Education Quarterly 20, (3), 430.

Brownson, R. C., Jones, D. A., Pratt, M., Blanton, C., and Heath, G.W. (2000). Measuring physical activity with the behavioral risk factor surveillance system. Medicine and Science in Sports and Exercise, 32, 1913-1918.

Brownson, R. C., Schmid, T. L., King, A. C., Eyler, A. A., Pratt, M., Murayi, T, Mayer, J. P., and Brown, D. R., (1998). Support for policy intervention to increase physical activity in rural Missouri. American Journal of Health Promotion, 12, (4), 264-266.

Dishman, R. K. (1994). The measurement conundrum in exercise adherence research. Medicine and Science in Sports and Exercise, 26, (11), 1382-1390.

Godin, G. (1993). The theories of reasoned action and planned behavior: Overview of findings, emerging research problems, and usefulness of exercise promotion. Journal of Applied Sport Psychology, 5, 141-157.

Godin, G. (1994). Theories of reasoned action and planned behavior: usefulness for exercise promotion. Medicine and Science in Sports and Exercise, 26, (11), 1391-1394.

Godin, G., and Kok, G. (1996). The theory of planned behavior: A review of its applications to health-related behaviors. American Journal of Health Promotion, 11, (2), 87-98.

Godin, G., Desharnais, R., Valois, P., Lapage, L., Jobin, J., and Bradet, R. (1994). Differences in perceived barriers to exercise between high and low intenders: observations among different populations. American Journal of Health Promotion, 8, (4), 279-285.

Hammond, L., Leonard, B., and Fridinger, F. (2000). The Center for Disease Control and Prevention director's physical activity challenge: and evaluation of a worksite health promotion intervention. American Journal of Health Promotion, 15, (1), 17-20.

Harrison, L., Brennan, M., & Levine, A. (2000). Physical activity patterns and body mass index scores among military service members. American Journal of Health Promotion, 15, (2), 77-80.

Heirich, M., Foote, A., Erfurt, J. C., and Konopka, B. (1993). Worksite physical fitness programs: comparing the impact of different program designs on cardiovascular risk. Journal of Occupational Medicine, 35, 510-517.

Herrick, A., Stone, W., Mettler, M. (1997). Stages of change, decisional balance and self-efficacy across four health behaviors in a worksite environment. American Journal of Health Promotion, 12, (1), 49-56.

Heskett, J., Schlesinger, L. (1997). Leading the high-capability organization. Human Resource Management, 36, (1), 105-113.

Jaffee, L., Mahle, Lutter, J., Rex, J., Hawkes, C., and Bucaccio, P. (1999). Incentives and barriers to physical activity for working women. AJHP, 13, (4), 215-218.

Kerner, M. S., and Grossman, A. H. (1998). Attitudinal, social, and practical correlates to fitness behavior: a test of the theory of planned behavior. Perceptual and Motor Skills, 87,(3 Pt 2), 1139-554.

King, C. K., Jeffrey, R. W., Fridinger, F., Dusenbuy, L., Provence, S., Hedlund, S., and Spangler, K. (1995). Environmental and policy approaches to cardiovascular disease prevention through physical activity: issues and opportunities. Health Education Quarterly, 22, (4), 499-516.

Krista, A. M., Caspersen, C. J., Pereira, M. A., FitzGerald, S. J., Gregg, E. W., Joswaik, M. L., Ryan, W. J., Suminiski, R. R., Utter A. C., and Zmuda, J. M. (1997). A collection of physical activity questionnaires for health-related research. Medicine and Science in Sports and Exercise, 29,(6) Suppl, S3-205.

Lawlor, D. A., Keen, S., and Neal, R.D. (1998). Increasing population levels of physical activity through primary care: GPs' knowledge, attitudes and self-reported practice. Family Practice, 16, (3), 250-254.

Lachman, M., and Jette, A. (1997). A cognitive-behavioral model for promoting regular physical activity in older adults. Psychology, Health & Medicine, 2, (3), 251-262.

Lechner, L., and DeVries, H. (1995). Participation in an employee fitness program: determinants of high adherence, low adherence, and drop-outs. Journal of Occupational and Environmental Medicine, 37, (4), 429-436.

Marcus, B. H., Owen, N. (1992). Motivational readiness, self-efficacy and decision making for exercise. Journal of Applied Social Psychology, 22, (1), 3-16.

Marks, B. L., and Rippe, J. M., (1997). Can employees successfully manage their own fitness program? American Journal of Health Promotion, 11, (5), 375-378.

Martin, S. B., Morrow, J. R., Jackson, A. W., and Dunn, A. L. (2000). Variables related to meeting the CDC/ACSM physical activity guidelines. Medicine and Science in Sports and Exercise, 32, 2087-2092.

Morrow, J. R., Jackson, A. W., Bazzarre, T. L., Milne, D., and Blair, S. N. (1999). A one year follow-up to physical activity and health: a report of the surgeon general. American Journal of Preventive Medicine, 17 (1), 24-30.

Nguyen, M. N., Potvin, L., and Otis, J. (1997). Regular exercise in 30- to 60-year-old men: combining the stages-of-change model and the theory of planned behavior to identify determinants for targeting heart health intervention. Journal of Community Health 22, (4), 233-246.

Nystrom, P. (1993). Organizational culture, strategies and commitment in health care organizations. Health Care Management Review, 18, (1), 43-49.

Parajes, M. F. (1992). Teachers' beliefs and educational research: cleaning up a messy construct. Review of Educational Research, 62, 307-332.

Pate, R. R., Pratt, M., and Blair, S. N. (1995). Physical activity and public health: A recommendation from the Centers for Disease Control and Prevention and the American College of Sports Medicine. Journal of the American Medical Association, 273, 402-407.

Randal, R. (1976). Influence of attitudes on organizational control. Administration and Society, 7, (4), 475-496.

Ribisl, K., and Reischl, T. (1993). Measuring the climate for health of organizations. American College of Occupational and Environmental Medicine, 35, (8), 812-823.

Rosen, R. (1996). Leading people: Transforming Business from the Inside Out. New York, NY: Viking Press.

Sarkin, J.A., Nichols, J. F., Sallis, J. F., and Calfas, K. J. (2000). Self-report measures and protocols affect prevalence estimates of meeting physical activity guidelines. Medicine and Science in Sports and Exercise, 32, 149-156.

Schein, E. H. (1992). Organizational Culture and Leadership. San Francisco, Josey-Bass Publishers, 232-233.

Shepard, R. J. (1996). Worksite fitness and exercise programs: A review of methodology and health impact. American Journal of Health Promotion, 10 (6), 436-452.

- Shepard, R. J. (1999). Do worksite exercise and health programs work? Physician and Sports Medicine, 27, (2), 48-70.
- Smith, R. A., and Biddle, S. J., (1999). Attitudes and exercise adherence: test of the Theories of Reasoned Action and Planned Behaviour. Journal of Sports Sciences, 17,(4), 269-81.
- Steinhardt, M., and Dishman, R. K. (1989). Reliability and validity of expected outcomes and barriers for habitual physical activity. Journal of Occupational Medicine, 31, (6), 536-546.
- United States Air Force. (1998). Air Force Instruction 40-501 Air Force Fitness Program [On-line] Available: <http://afpubs.hq.af.mil/pubfiles/af/40/afi40-501/afi40-501.pdf>
- U.S. Department of Health and Human Services. (1996). Physical Activity and Health: A Report of the Surgeon General. [on-line] Available: <http://www.cdc.gov/nccdphp/sgr/summ.htm>
- United States Department of Health and Human Services. (2000). Healthy People 2010. 2nd ed. With Understanding and Improving Health and Objectives for Improving Health. 2 vols. Washington, DC: U.S. Government Printing Office.
- Wareham, N. J., and Rennie, K. L. (1998). The assessment of physical activity in individuals and populations. International Journal of Obesity, 22, Suppl 2, S30-S38.

Wishnick, Y., and Wishnick, K. (1998). The effects of personal and social beliefs on teacher association leaders' stated intention to support site based decision making. Collective Negotiation, 27, (2), 149-165.



## Appendix A

### Responses to Open Ended Section

The following section categorizes responses to the open ended item: "Please use this space to add comments on policies or practices that you have regarding physical activity for your squadron members. Describe any incentives for physical activity or disincentives for physical inactivity. You may also elaborate and provide your opinions regarding your role as a squadron commander, physical activity and fitness for Air Force members." There is some overlap in comments between categories so that the context of the statement is not lost. Comments have not been edited for grammar.

#### Policies

1. All members required to participate in one fitness option per week; Members allowed to use duty time for fitness, but also "allowed" to work early or late to keep up; Officers and top 3 actively encouraged to use duty time at least once per week
2. Duty requirements preclude regularly schedule squadron fitness activities...however we do allow time on a staggered basis for all members to exercise during duty days if desired. If on SFIP, we monitor their required participation through the HAWC.
3. I have mandatory physical fitness formations every Monday and Wednesday, 0720 -

0900 for 165 military members of my SQ. 0720 begins low impact stretching, 0730 begins two sets of push-ups, sit-ups, and toe touches/stretchers each; 0745-@0830 is member's choice for weight and/or aerobic exercise; 0830-0900 is clean-up and transition time to start work at 0900. My SQ has been doing this since June 2000 - it is not only good for fitness, but promotes camaraderie and esprit de corps in the SQ. I also encourage fitness during lunch hours and off-duty...

4. I mandated all to exercise three times weekly 1 1/2 hours during duty time. This was on an honor system, but we also had an electronic e-log system for individuals to log exercise time and activity. I also started a "Fitness Club." The club's purpose was to promote complete fitness...i.e., proper diet, aerobic activity and weight training. Personnel on the weight management program, SFIT and MFIT were mandatory members. Others just interested in improving their fitness level joined also (voluntarily).

5. I encourage 3 hours weekly during duty day. This may be accomplished by an extended lunch, late arrival to work or early departure from work. MFIP becomes mandatory.

6. Squadron has mandatory PT twice a week. Consist of exercises followed by formation run (2 mile)

7. I've mandated that three days a week, we will adjourn to the gym at 1530 to participate

in whatever fitness program they desire. On Friday's however, it must be as a squadron.

8. I have required PT for both of the squadrons I have commanded. I think it's a vital part of the daily routine.

9. I have a standing policy that allows people in my squadron to participate in fitness activities during duty hours. I allow them an hour and a half, three time a week in addition to their lunch.

10. I allow people off an hour early on one day a week to go to the gym. It hasn't been a been success. I have not pushed a squadron physical fitness program nor have I discouraged people from going during the week during duty hours. I wouldn't have a problem with someone going to the gym during the day provided they got their job done well.

11. I encourage supervisors to allow members time for physical fitness activity. It is the individual supervisor that monitors time of day.

I initiated a 2 times per/week morning "warrior workout" for WMP and ergo failures.

Other sq members are invited to attend.

I have no other "mandatory" sq fitness because like me, some folks are not all runners, bikers, or stair steppers--and some of us do not like aerobics. I feel that we should give them the time and let the individual do the activity that they are more comfortable with. I think if they like what they do, they'll get more out of it.

12. If this were not a remote location with no outside demands ie family I would be and have been much more liberal with using duty time for physical activity. At this location we have very little else to and the gym is constantly packed and intramural sports participation is huge.

13. My unit has PT three times per week from 0645 until 0830. Unit members report to work NLT 0830 Mon, Wed, Fri. I basically give three hours of "my" time to PT.

14. I hold mandatory physical training sessions twice per week for all squadron members. I start the PT session 30 minutes prior to normal duty hours. I also require 30 minutes of self-paced aerobic exercise before/after PT. I participate with my squadron on intramural teams.

15. I command the 31st Combat Communications Squadron at Tinker AFB, OK. Our mission is to deploy to austere locations and establish communications for the deployed wing commander. Because of our mission, and the high degree of physical fitness required to excel during our exercises, Squadron PT is mandatory 2 times per week. Flights are encouraged to have organized PT one more time per week. Winter squadron PT consists of stretching, exercises, then a choice of weights, aerobic activity, or basketball at the base gym. Spring, Summer, Fall PT consists of stretching, exercises and a 2 1/2 mile run.

16. Allow sqdn members three one hour periods of duty time per week or to add 30

minutes per day to lunch period, five days per week for physical activity. Group activities have included hiking, bowling, softball and general sports day (semi-annually). Two of four flights have exercise equipment (weights and aerobic machines) within work centers. Sqdn intramural teams (basketball, softball, volleyball, football, darts) encouraged and supported. Those on WBFMP REQUIRED to exercise during duty time to ensure they participate. Record of exercise time recorded and reviewed weekly by supervisor.

17. I encourage my troops to take their lunch time at the gym. I do not like, nor encourage them to go to the gym and then take a lunch break. I have recently changed my schedule, and go to the gym early in the morning (0600) instead of coming into the office. I am finding this is getting my day off to a much better start instead of working e-mails! I'm starting to encourage my troops to do the same

18. Each flight in my squadron has it's own physical fitness program; some perform it before duty hours, some are mandatory.

19. I have a published policy authorizing ALL unit members an hour of duty time between 0730 and 1430 each day for physical activity and exercise. I also have a quarterly activity days where we shut down and participate in sports activities

20. mandatory PT (activity) once a week and every other week, calisthenics-based PT.

Intramural teams encouraged and individual counseling provided to those on WMP

21. Because of shift work and schedule it is impossible for the majority of the squadron to

use duty time for PT

22. Our Medical Group had adopted a required "Ready Medic" program consisting of aerobic exercise, calisthenics, and organized sports (volleyball, basketball, etc.). We have found that folks exercise more and have more fun if we incorporate some sort of competition.

23. I highly encourage physical activity and actively participate in squadron intramurals.

24. Mandatory PT on Tues and Thurs starting at 1500. Tues is self determined (weights, run, etc...).

Thurs is a team type sport (ultimate frisbee, softball, volleyball).

25. require vigorous physical activity 3 x per week. I require two flight sports activities per month as a group--volleyball, softball, etc. (I have 6 flights, 500+people total) I push for this to be part of the duty day! It is an Air Force and DoD requirement, and it should not be something we just "try to fit in after work if possible." I wish I could fit in 5-6 times per week, but it's just impossible with this many troops.

26. We take the US Army PT test quarterly. as a squadron, to maintain our readiness level.

My unit exercises as a group twice a week during duty hours and I ask them to exercise at least one other time on their own during the week. I would love to institute this as a joint military and civilian program but don't believe the wing leadership would endorse this

many people, approx 400, away from the duty section at a time. By not being able to do this, there is a barrier create between my military and civilian employees.

27. We have weekly unit workouts (mandatory) that involve circuit training and occasionally sports. We have good intramural participation, and succeed at yearly base sports festival. We check push ups and sit ups every month too

28. Our squadron runs in formation once per month at moderate pace 10 min/mile for about 2 miles. Sometimes we break into ability levels. It amazes me how some cannot even keep this pace and fall out after a half mile. Only one of the four flights runs together (the biggest one actually). They exercise every week; same level of activity.

Our SPTG also runs once per month in formation at about the same pace and distance although the distance has been increasing. We are one of the more fit squadrons based on pace and # of fallouts.

I always encourage folks to be doing more than just our organized runs.

29. I participate on Sq intramural teams and encourage others to get involved

30. Squadron policy is for all squadron members to have one and a half hours of duty time, three times per week dedicated to fitness. Some shops workout as a group and others individually.

31. Soon after taking command on July 2000 I put the squadron through a complete fitness assessment. Then I instituted mandatory squadron fitness once a week and

encourage all flights to all have a fitness time. During our squadron activity we meet together for 30 mins to warm up together, do stretching then two sets of push-ups and sit-ups. Then all members are required to do 30 mins of aerobic activity or their own choosing

32. Physical fitness is an important part of being a member of the armed services...regardless of service. We should have mandatory PT in all units and more stringent fitness tests. My squadron does mandatory PT every Wed and Fri. Plus we do team building with exercises and a post-run cool-down in formation.

33. Not to be ambiguous in my responses--I encourage exercise on and off duty as long as offices are covered during duty hours

34. As Sq CC I try to make as many of the various intramural games in all the sports my squadron participates in--primarily to encourage members to participate. I always discuss the squadron sports teams accomplishments at monthly commanders calls. Additionally, each month, balance between work, family, and outside activity (to include exercise and stress relief) is discussed.

35. I instituted a mandatory squadron fitness program that begins 1/2 hr before the normal work day and ends 1/2 hr after the workday begins (0630 - 0730 hrs) on Mon, Wed, & Friday. We participate as a group. Monday is track work - jogging/walking/cadence. Wednesday is fast paced circuit training and Friday is a choice between full ct Basketball



or aerobic machines.

36. We set up an 0700-0900 M/W/F PT program to allow people to exercise during duty hours--partly to emphasize importance of fitness, partly for esprit de corps. All three days we meet for calisthenics from 0700-0715. On M/F we then split for individual aerobic PT--running, walking, biking, aerobic class, racquetball, basketball, swimming, etc. On M/F we also run an afternoon session with 15 min calisthenics and 45 min aerobic activity in case people have duty commitments in the morning. On Wed mornings, after 15 min calisthenics we do a 3 mile run in formation, with a target time of 10 minutes per mile. The entire program is mandatory for military members (147 assigned) and highly encouraged for civilians (120 assigned) and we have great participation. Any military member on a profile who cannot run joins a walking flight for the same amount of time. If the profile says no walking or running, we tailor a PT program so the individual still has 45 min aerobic activity during each of the three days.

37. I have directed squadron athletics three times per week. One of these events is a mandatory squadron "formation." The other two events are self-paced. All three are conducted during duty hours

38. The AF demands its members be physically fit so personnel should have time during the duty day to ensure they meet these standards. If for no other reason, engaging in a regular physical fitness program is the right thing to do whether in the military, or not.

39. We have quarterly sports days where I require my airmen to participate in fitness activities.

40. We conduct a mandatory running time twice per week (1/2 duty, 1/2 off duty time); additional off-duty fitness encouraged

41. I answered your question as best as possible but you need to understand that I allow all airmen in my squadron, INCLUDING those on the WBFMP and SFIP/MFIP to use duty time for physical activity. We have a mandatory PT program 3 times a week. Our duty day usually starts at 0730, but on Mondays, Wednesday, and Fridays, we start the day with PT at 0700. PT runs from 0700 to 0845 and includes 14 exercise and then an aerobic activity for at least 30 minutes. I give my troops 1 hour and 15 minutes and they give me 30 minutes of their time. Also, we rarely cancel PT because I want them to understand that no matter how swamped we are with work, PT is a way of life. That is why we have it in the morning too...I don't have folks normally sneaking off or find some reason in the office to not get there. We start off the day with the blood pumping and we keep going until the duty day ends ( provided by respondent: 32 CCS/CC, Tinker AFB).

42. Highly encourage participation in intramural sports and seldom have a problem with any organized physical activity scheduled during duty time

43. We have mandatory Unit PT on Tuesday and Thursdays with group calisthenics to warm up. Our Squadron OI also recommends individuals use this Unit PT to supplement

their own personal exercise program.

44. I actively encourage all members of my squadron to regularly participate in physical activity and/or base/intramural sports programs. I hold each individual personally responsible and accountable for maintaining AF weight, body fat and fitness standards. As the squadron commander, I lead by example, and actively participate in every squadron intramural sports program. While I do not encourage members to participate in physical conditioning while on duty, I do not have a problem with it. I only expect and demand that they put in a full days work for a full days pay (8 hours minimum). We have been very successful using positive reinforcement, encouragement, personal responsibility and accountability in making sure all of our folks meet or exceed AF standards.

45. I lead by example--every day I have my secretary block 2 hours for physical fitness--when I see my squadron members at the gym, I go out of my way to recognize them. We have teambuilding exercises every month (i.e., obstacle course, softball, etc.) Everyone is encouraged to take time to go to the gym during the work day.

46. MDOS has monthly fitness combined with SQ CC Call, I keep CC call to 30 min and we exercise for 30 and then personal gym time- I tried hard to allow exercise time on duty for all, but it is at supervisors discretion r/t getting the mission done

47. My squadron has a voluntary PT program 3 times a week (M/W/F) from 0730-0930. I try to participate but find most of the time I am unable to due to group and wing staff

meetings.

I encourage participation in intramural sports. I attend as many intramural games as possible (probably 75%) and participate in some.

48. I have implemented a physical fitness program for our squadron. If you want a copy of it, I can email it to you.

49. The wing has a policy of allowing members to use 3 hours of duty time per week for working out. I highly encourage that.

#### Lead by Example, Personal Activity

1. One of the key aspects of the whole physical fitness concept, as it relates to command, is "visibility." From a command image standpoint, I believe it is very important to be seen working out, both during and after duty hours, by your squadron members.

2. I believe a squadron commander can have great influence on the fitness level of squadron members.

3. I believe in exercise very strongly. I run 3 miles 3-4 times a week.

4. I take fitness as my personal responsibility. It directly enhances readiness, health, morale, and esprit de corps. I start the PT session 30 minutes prior to normal duty hours.

I also require 30 minutes of self-paced aerobic exercise before/after PT. I participate with my squadron on intramural teams. This allows me to lead by example in a healthy, team environment

5. Poor excuse, but during last six months wing had 4 one week long contingency exercises in MOPP gear (including IG) that broke up previous exercise routine.
6. I am on profile for a back injury and that is why my current exercise program for myself is lacking. Otherwise, I would participate in an exercise program at least every other day.
7. My opinion is that fitness is inherently an individual responsibility. It is up to the individual to ensure they maintain weight and fitness standards. My role is to provide them the tools/opportunities to stay healthy. Finally, I'm a firm believer in leadership by example. By setting and maintaining a high standard for myself, it helps to motivate my subordinates.
8. I have recently changed my schedule, and go to the gym early in the morning (0600) instead of coming into the office. I am finding this is getting my day off to a much better start instead of working e-mails! I'm starting to encourage my troops to do the same.
9. A squadron commander's time is extremely limited; although I personally strive to block time for myself to exercise, I rarely utilize the time because some other "hot fire" is brewing. By the time I get home to exercise (12 hrs later), I'm exhausted.
10. We need more attention to this area - good job!
11. I believe that physical activity is important and wished I had more time for it. As a commander I already work 12-13 hrs days. I would have to be at the gym at 0500 everyday to be able to get a workout.

12. I highly encourage physical activity and actively participate in squadron intramurals.

However, as a squadron commander, the demands on my time prohibit as much physical activity as I used to do. Once command is complete, my fitness program will be reinvigorated.

13. I participate on Sq intramural teams and encourage others to get involved

I feel it is very important to set the example and strongly support fitness activities.

14. most exercise time has to be during personal/free time -- that is the biggest factor in the inability to maintain a regular exercise regime -- I try to maintain a minimum of 3 workouts a week, but 2 of those are on the weekend and hopefully I can squeeze one or 2 into the week (but often feel guilty for taking any of the 12-hour day to accomplish) -- exercise facilities/equipment in the squadron helps

15. Despite not being a "jock", I try to set the example for my folks by working out daily (either running or at the fitness center) which is noticed by my folks. The long hours a Sq CC puts in--0430 - 1930 almost daily (M-F)--makes it tough to consistently maintain an exercise routine without making it a priority.

16. Wish I had time. I used to work out when "doing more w/less" was not the standard  
The Air Force is too short on manning-too many taskings

17. Physical activity is very important for military readiness. I have been in command for the last 3 years. My time is so limited as a commander that my exercise program has

declined to zero during duty hours. To get time to exercise, I have to get up at 0430 to go run.

18. I hold each individual personally responsible and accountable for maintaining AF weight, body fat and fitness standards. As the squadron commander, I lead by example, and actively participate in every squadron intramural sports program.

19. I lead by example--every day I have my secretary block 2 hours for physical fitness--when I see my squadron members at the gym, I go out of my way to recognize them. We have teambuilding exercises every month (i.e., obstacle course, softball, etc.)

20. I try to participate but find most of the time I am unable to due to group and wing staff meetings.

I encourage participation in intramural sports. I attend as many intramural games as possible (probably 75%) and participate in some.

21. The work level is such that duty time cannot be used for exercise. I have difficulty trying to get into a regular routine. I would love to give people time to exercise--also for me.

#### Air Force Fitness Program and Policies

1. I do personally strongly believe that the current AF fitness assessment is poor at best. I'm for going to a 3 mile run--a standard is simply not a standard if you can't measure yourself against it consistently. I never know what the bike test result will be until I do it

on my annual assessment. It's a joke. I know the fitness level of the folks in my squadron and it is not well reflected by their annual aerobic scores.

2. I currently have 16% of my squadron on the weight management program...which is significant since I only have 88 people in my squadron. In my opinion, weight is the biggest standards violation among our people, officers and enlisted, young and old. I have had three people make unsatisfactory progress this month alone. I think the Air Force needs to implement something along the lines of the Army mandatory unit PT program.

3. I believe in exercise very strongly. I run 3 miles 3-4 times a week. My confidence in the ERGO program however is poor. I have problems passing it even with regular exercise. On the other hand I have people that do no exercise that can get 40s on VO2. I have a world class marathon runner who runs a full marathon in 2 hours 23 minutes and gets a 38 VO2 on his bike test. From my perspective it is not a good test.

4. I think the AF bike test is a complete waste of time. I run and exercise daily yet have trouble passing the test. I have over weight airmen who always pass the test with high marks. If I had my way I'd turn every bike into DRMO and go back to the run or a similar test to the Army's. We're the laughingstock of the services with that stupid bike test.

5. Organized squadron workouts are useless with respect to increasing bike test scores unless you force rigorous exercise. I've been at a unit that did organized PT twice a week (the 5 CCG at Robins, I think the 3 CCG at Tinker does too). We had just as many



people fail the bike test as everyone else. To really affect scores you'd have to make people do aerobic exercise (e.g. sweat). A few calisthenics and then letting them go off on their own does not work to lower scores. The people that are inclined to exercise already pass the test. Short of standing over someone's shoulder while they exercise (or making everyone do the same thing) you won't get a significant change in scores as a result of squadron PT.

6. I believe the cycle ergometry test has been a failure. It is horribly resource intensive to administer, and yields results that few people in the Air Force consider reliable. If the Air Force is serious about maintaining and enforcing fitness standards for its members (and I think it should be) I believe we need to change our process for measuring fitness levels. I understand the aerobics run fell out of favor because every year, members died during their run. I don't think that makes a timed run an inappropriate way of testing fitness levels. But most people knew you could do almost no activity for a year and gut out a 1.5 mile run in the time allotted...and many tried to do just that, with sometimes tragic results. I believe more frequent and longer runs, perhaps with all members of the unit participating together, would be a more effective and less costly method. If people knew they were going to have to run a brisk 3 miles every quarter for time, they would be much more inclined to keep themselves fit. And individuals who failed to meet the minimum standard would not be left wondering if the results would have been different if they hadn't had that

cup of coffee in the morning, or if the test administrator were better trained.

I think the bike test is a waste of money, and the WBFMP is too complicated to administer easily. I've also noticed some new enlistees coming in already overweight in their late teens or early twenties. They have an extremely difficult time meeting standards.

7. Present AF ergometric testing only measures aerobic capacity; I prefer a physical assessment that also includes strength and flexibility. If the AF were truly serious in getting folks into shape, we would develop a standardized test (e.g. Army or USMC) and then document that score on OPRs/EPRs. The present program has no consequences for poor performance

8. mandatory PT (activity) once a week and every other week, calisthenics-based PT.

Intramural teams encouraged and individual counseling provided to those on WMP. I had a special duty assignment in the Athletic Dept at the USAFA and have a good knowledge of physical training, nutrition. I have tried to emphasize the physical activity as a lifestyle change that will pay benefits during and after military service. A lot of our sports are competitive in nature. For 6 weeks before the annual ergometry test, we went to the gym twice per week. We emphasized sit-ups and pushups, especially. Our ergo failures went from 10 in 28 testing to less than 3 failures this year (after some 2nd tries).

9. Still suspect of the cycle ergometry test as a reliable assessment of personal fitness. I've got too many troops who pass that don't exercise regularly, smoke, and are pressing

weight limits, while others who exercise regularly and appear to be in good physical condition have difficulty passing or obtaining a valid reading. Just an observation from the field.

10. Three times a week is good, but probably not enough for the ergo test--when we get ready to test this summer, I will up my exercise rate the month before the test. Most of my airman are not that impressed with the whole fitness concept. They don't understand the ergo test, and don't see it as fair i.e. how some people never exercise and pass, and some exercise regularly and fail. I hear this often

11. The current test is a poor reflection of the cardio vascular fitness of military members. In one case, a squadron members who trains at the Olympic level with a world-class para-Olympics (blind) athlete did not pass, in another an individual with 30+ percentage body fat passed with an above average score. 92 We take the US Army PT test quarterly as a squadron, to maintain our readiness level.

12. I still have concerns about the cycle ergometry test as an assessment of my physical fitness. I don't ride a bike normally as a part of my regular physical fitness program but was encouraged to do so to increase my score. I started 6 weeks before this year's test to do just that and got the lowest score on my cycle ergometry test I've gotten in the last few years.

13. I think that discharges due to weight are a waste of resources and I hope we can find a

better way to deal with this issue. If this issue is truly important to the AF, we must figure out a way to integrate it within our normal work routines.

14. Ergo is a waste of time for the Air Force...most of my Wt Management problems are not for weight but for failed or no test ergo....approximately 30% of my squadron...this wastes my Command Support Staff time as well as pulls physically fit crew chiefs, weapons loaders, and aircrew off my schedule because of this over-managed program...I also have to provide people to detail ERGO which pulls 2 more qualified 3 or 5 levels out of my squadron to watch a bike test...Waste of valuable resources...we could do squadron scheduled fitness tests on non-flying days and get all the requirements done in a day. Help us all out and GET RID OF ERGO!!!! GO BACK TO THE 1 and a Half mile run....

16. As a squadron commander how can I defend or promote test when I work out 4-5 time a week and fail test and then my airmen who smoke and do not workout pass. No confidence in test, how do I relate to personnel I have to put on SFIP.

17. To get time to exercise, I have to get up at 0430 to go run. Ref the failed PT test... I have never passed the test since the start of the bike test (documented white coat syndrome). My heart gets going to fast to start the test. When the health and fitness center monitors my workouts... they see that I'm in great shape. Bike test is a valid test... just not good for a small percentage of people (like me).

18. Physical activity is important. The weight standards are very unfair for women. I

have yet to meet a woman over the age of 25 who has had children who is not within 5% of her max weight. I have had to discharge one woman this year and another one almost ready to go..one more failure. I think it needs drastic revision.

19. Many people prepared for weeks (or months) for that moment. And remember, our members say they join the military for the "people" interactions. Good squadrons built the annual fitness run into a cult-holiday event...an opportunity to build team spirit, (and it didn't involve alcohol or cigarettes). Many levels of leadership can be challenged by a running program. Because the USAF no longer require a group aerobic event, they have thrown-away another opportunity for a regularly scheduled gathering of professionals. One of the few such gatherings remaining in the Air Force is the group that regularly meets around the "butt" can behind the building (smokers).

Riding the sissy bike in the corner, behind the privacy screen does not promote team unity.

It seems like if the AF recognizes that their population is unfit then frequency of the test should be increased from once a year to two or three times per year. Cycle ergometry could be available as an alternative. Ergometry is an example of how too many of our leaders start tampering with programs before they have a clear understanding of the objective. The objective was not better measurement but better health. Allegiance has faded long ago on this expensive, high tech fitness measuring program.

Does the Air Force have an investment in health and physical fitness? Or is health only a

concern when we are unhealthy and fitness only a concern when we are unfit? Where would the Air Force be today if they spent our entire R&D budget only on equipment that measured bomb dropping accuracy instead of improving air power capabilities? Probably still have a fleet of B-17s.

Is the goal of "ergo" to improve and sustain high levels of physical fitness or just to measure and provide more accurate statistics?

Ergo is a punitive program. It costs money for equipment, skilled labor to understand and manage the program, it often costs multiple trips for every individual who requires measurement. It costs each squadron hundreds of man-hours to support the implementation infrastructure. The Air Force has gone from a fitness program which some likened to an annual demonstration of new jogging outfits and peer pressure driven running...to wet electrodes, privacy screens and clinical efficiency... all with the same results.

The kicker...all this measuring has not lead to improved physical fitness in the Air Force... just a more accurate measurement. Don't get me wrong. The former mile and a half run was a punitive program as well. Some say there were more benefits, like esprit de Corps, more preparation (by some), and healthy competition. The bottom line, getting in shape should make you feel good. While getting "Ergo-tested" only makes you feel like you want to go wash yourself. The old jogging test was there was still a punitive program.

There was punishment for failure and the only reward for success was... the lack of punishment. Given the choice, the rules for passing the jogging test were easy to understand and a new jogging out fit seemed to cost me less than today's man power intensive ergo program. In the Air Force culture, fitness is voluntary. It shouldn't be. So back to the original problem, how do we improve the fitness in the Air Force and minimize the punishment mentality? What if there was a reward for good physical fitness? What if the Air Force had a mandatory program that employed the high-tech ergo scientists to instruct Air Force service members 'how' to improve their aerobic capacity "then" reward improvement and above average (V/O<sub>2</sub>) capacity?

20. We have been very successful using positive reinforcement, encouragement, personal responsibility and accountability in making sure all of our folks meet or exceed AF standards. In three years, I have not had to discharge anyone for failing to meet/maintain AF standards

21. Anyone who beats my score on Ergo gets a 1-day pass. I am appalled at the 63 %pass rate for ergo in my squadron. I realize that my exercise regimen is beyond the norm but there are plenty of folks who do no exercise. The AF assessment program is a joke and always has been.

#### OPTEMPO and Barriers

1. Duty requirements preclude regularly schedule squadron fitness activities...however we

do allow time on a staggered basis for all members to exercise during duty days if desired.

2. Current push by AFMS to ensure success of PCO and survival of TRICARE directly conflicts with any attempt to build a physical activity-related program into daily squadron/MTF operations during regular duty hours. It comes down to either reaching productivity goals or supporting fitness goals during duty hours, and productivity goals are the only ones we're held accountable for as a MDG. Even one hour reserved for fitness would cut into reaching productivity goals. Unfortunately, it's a short term focus, since eventually a general decrease in the fitness level of members eventually adversely impacts their productivity output.

3. I am constrained by outside forces, unfortunately. I believe if the AF is serious about physical fitness, time for physical conditioning should be a part of the duty day even if it means a slight decrease in productivity in some other area. This needs to come from above as many commanders will not allow this. In this time when many are putting in 10-12 hour days, they should not have to put in another 1-2 away from family, etc., to pass their physical evaluation. I see this as getting worse when strength assessment becomes official.

4. I run a SVS squadron. Perhaps because we "own" fitness, WMP and poor image are not problems in this unit. However, because of our customer orientation and inability to "close" functions, on-duty participation is VERY difficult.



5. While I agree fitness is important to health, stress, and overall readiness. But when we have insufficient resources and still have to support a high level of workload both in garrison and deployed, I don't see how you can get the most out of your workday and still give everyone the opportunity to work out all the time. I am retiring after this assignment and part of it is because, we ask our folks to do too much with fewer and fewer resources and then we turn around and tell them we expect them to work out and get involved. It's too much.
6. Poor excuse, But during last six months wing had 4 one week long contingency exercises in MOPP gear(including IG) that broke up previous exercise routine.
7. Physical fitness is extremely important to mission readiness. Unfortunately, some AFSC do not lend themselves to allowing airmen time on-duty to go to the gym. This is due to mission requirements not command directed.
8. This is a huge challenge. I'm overseas and we're undermanned in most specialties. Many of my squadron members are shift workers
9. Ops tempo is very high. It is good PR for the AF to say we encourage folks to work out during duty time, but the reality is there is too much to do, and responsible people just won't let important taskings go undone so they can go to the gym. I expect you will get some useful data out of this survey, but you can't change the ops tempo.
10. Regular exercise is critical to health and duty performance. Unfortunately manning is

so critically short that my personnel have to work overtime every day to complete minimum job tasks. Until we get more people, I won't be able to encourage personnel to exercise during the work day.

11. Our high OPTEMPO and manpower shortage prevents unit personnel from taking full advantage of physical fitness opportunities.

12. Fitness is important, but it must compete on a practical level with competing demands for time with many members who work second jobs, have a very demanding work environment, large families, children with special needs, or personal educational pursuits. I think that discharges due to weight are a waste of resources and I hope we can find a better way to deal with this issue. If this issue is truly important to the AF, we must figure out a way to integrate it within our normal work routines. Otherwise, we have folks in school or with second jobs who suffer from lack of sleep in an effort to cram everything in.

13. I've indicated that "I" think activity is important to my airmen...I'm not sure they would agree. Far too many of them are not active enough.

14. While I encourage and even attempt to use duty time to exercise, in the "operational" world it is very difficult to fit these type activities into what often constitutes as 12-14 hour work day (with no planned breaks/meals) -- most exercise time has to be during personal/free time -- that is the biggest factor in the inability to maintain a regular exercise

regime -- I try to maintain a minimum of 3 workouts a week, but 2 of those are on the weekend and hopefully I can squeeze one or 2 into the week (but often feel guilty for taking any of the 12-hour day to accomplish) -- exercise facilities/equipment in the squadron helps

15. Our day-to-day opstempo precludes squadron members from participating in organized, on-duty physical activities (squadron runs, etc.) on any kind of a regular basis.

16. The biggest challenge for an ops unit to conduct physical activity is the flying and meeting schedules. Combined, the day easily hits 12 hours and drains the life out of you.

17. There is simply not enough time in a day to allow exercise to be a priority. The operational mission takes priority. Folks you need to understand most of my maintainers are working 12 hour days with lunch on the fly. With that level of workload something has to give.

18. The strong emphasis on physical fitness is largely due to being assigned to a unaccompanied, remote assignment. Physical fitness activities are much preferable to other idle/leisure time activities

19. Wish I had time. I used to work out when "doing more w/less" was not the standard  
The Air Force is too short on manning-too many taskings

20. Would like to have a unit fitness program, but Ops TEMPO and local base demands prevents it without increasing duty hours to 50+ per week for all units members. I'm not

willing to go there for retention/morale reasons.

21. I tried hard to allow exercise time on duty for all, but it is at supervisors discretion r/t getting the mission done--this is very hard with current PCO requirements--really does require people to use their personal time for exercise--but Dental folks get 90 min. lunches 3x/wk to do gym time

22. Base sports programs are the best way to get the squadron moving towards sports.

It appears the survey is making a case for using duty time for physical activity. In my squadron work hours vary based on flying schedule. On and off duty are blurred when measured against a 7;30 to 16;30 schedule. Is not duty 24 hours a day???? Packing more work (mandatory PT) into the duty day will not promote physical fitness as much as you appear to think that it would.

23. The work level is such that duty time cannot be used for exercise. I have difficulty trying to get into a regular routine. I would love to give people time to exercise--also for me.

24. Fitness is a duty reqt...so I provide nominal duty time (1.5 hrs/wk). Can't afford any more time w/o mission impact. However, members must supplement w/own time to preserve own health.

## APPENDIX B

### Cover Letter E-Mailed to Commanders

## MEMORANDUM FOR AIR FORCE SQUADRON COMMANDERS

FROM: Capt Dana Whelan, AFIT/CI Student

SUBJECT: Request Critical Leadership Input in 5 Minute Survey

USAF SCN: 01-034

1. You obviously have an important influence on the behavior of the personnel in your squadron. Research in organizational health supports the influence of leadership on lifestyle related behaviors. Specifically, physical *inactivity* is a predictor for a number of issues influencing both individual and organizational health. I am conducting this study, with approval from the Medical Operations Agency, Office of the Surgeon General, to characterize Air Force squadron commanders' leadership beliefs and practices regarding physical activity. You have been randomly selected to complete a **very brief** survey. **Your individual responses are anonymous.** Collective results will be analyzed in cooperation with the USAF School of Aerospace Medicine's Performance Enhancement Division, shared with the Air Force Medical Operations Agency and will be used as an AFIT Master's Degree Thesis. Study participation is voluntary. You are free to discontinue participation at any time without any prejudice from the investigator.

2. The survey will take **only five minutes** to complete. Your participation is **critical** to the findings of this study and will add to the understanding of squadron leadership's role in promoting physical activity among airmen. Please access the survey at:  
<http://ci.afit.af.mil/cim/cimi/survey>  
This site will be accessible until 21 May 2001.

3. If you have questions regarding this survey, or would like to receive the results, please contact Captain Dana Whelan at [WHELAN31@aol.com](mailto:WHELAN31@aol.com) or (937) 472-0149. My faculty supervisor is David Gobble, PhD, Acting Director, Fisher Institute for Wellness and Gerontology, 1-888-WELLBSU. Questions about your rights as a subject participant can be directed to Coordinator of Research Compliance, Ms. Sandra Smith at the Office of Academic Research and Sponsored Programs, Ball State University (765) 285-1600. Thank you, in advance, for your participation.

*Signed*

DANA L. WHELAN, Capt, USAF, BSC  
AFIT Graduate Student, Wellness Management  
Ball State University

## APPENDIX C

Survey as it appeared on the web.

# Squadron Commanders and Physical Activity

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Thank you for taking a few minutes of your busy schedule to complete this survey. Expect to spend 5 minutes answering all questions. After answering the questions, click on the "Submit Form" button located at the end of the survey. Your responses will be forwarded anonymously to be compiled and analyzed.

Select your current group assignment:

- ☐ Operations
- ☐ Logistics
- ☐ Support
- ☐ Medical
- ☐ Other

Select your current rank:

- ☐ Captain
- ☐ Major
- ☐ Lieutenant Colonel
- ☐ Colonel

Select your gender:

- ☐ Male
- ☐ Female

Enter your current age:

Select the first 2 numbers of your primary AFSC (some AFSC's have been combined to protect your anonymity):

Select your current MAJCOM assignment:

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***For each category, check the statement that most accurately reflects your current activity level. If you have dramatically changed your activity level in the past month, please respond for the period of time prior to the change.***



How often did your usual day include *moderate physical activity* equivalent to brisk walking, bicycling (leisure), low-impact aerobics or dancing, doubles tennis or racquetball, hard yard work (push mowing or shoveling), continuous movement circuit training with weights or machines, or other similar activities *for a total of at least 30 minutes or more per day?*

- ☐ Almost never
- ☐ Twice a month
- ☐ Once a week
- ☐ Twice a week
- ☐ 3-4 times a week
- ☐ 5 or more times per week

How often did your usual day include *vigorous exercise* equivalent to running/jogging, cycling, high impact or step aerobics class, swimming laps, cardiovascular equipment (stationary bike, elliptical trainers, rower, stair steppers, etc.), sports like soccer, singles tennis or racquetball, or basket ball played at a competitive level (sports must be continuous in nature) and other intense aerobic rhythmic activities *for a total of at least 20 minutes or more per day?*

- ☐ Almost never
- ☐ Twice a month
- ☐ Once a week
- ☐ Twice a week
- ☐ 3-4 times a week
- ☐ 5 or more times per week

I've maintained the level of vigorous exercise and moderate activity indicated above for the past:

- ☐ 1-6 months.
- ☐ 7 months or more.

**For each of the following items, identify the statement regarding regular physical activity that best reflects your opinion.**

**Regular physical activity:**

	<b>Disagree Strongly</b>	<b>Disagree</b>	<b>Disagree Slightly</b>	<b>Neutral</b>	<b>Agree Slightly</b>	<b>Agree</b>	<b>Agree Strongly</b>
is important to me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
is important to maintaining my health.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
improves my overall performance and productivity.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
helps me maintain a higher level of readiness.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

helps me control stress.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
helps me control my weight.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
helps me achieve and maintain weight standards.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
helps me achieve and maintain fitness standards.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
helps me improve and maintain my military appearance.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

For each of the following items, identify the statement regarding regular physical activity of *airmen in your squadron* that best reflects your opinion.

**Regular physical activity of airmen in my squadron:**

	Disagree Strongly	Disagree	Disagree Slightly	Neutral	Agree Slightly	Agree	Agree Strongly
is important to their health.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
improves their job performance and productivity.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
helps them maintain a higher level of readiness.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
helps them achieve and maintain weight standards.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
helps them achieve and maintain fitness standards.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
helps them improve or maintain their military appearance.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
decreases their absenteeism.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
reduces their medical care needs.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Respond to the following statement:**

Disagree Strongly   Disagree   Disagree Slightly   Neutral   Agree Slightly   Agree   Agree Strongly

I increase my activity level

<http://ci.afit.edu/cim/cimi/survey/>

6/30/2001

Submit Form

Reset Form

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**Capt Dana Whelan, BSC, USAF**  
**AFIT Graduate Student: MS Wellness Management**  
**Ball State University**

**Revised: May 01, 2001**

I reward airmen in my squadron for *meeting or exceeding AF fitness standards*.

- ☐ Yes
- ☐ No

I provide organized group activity for my squadron members.

- ☐ Yes
- ☐ No

I use duty time for physical activity (Respond "yes" even if only occasionally).

- ☐ Yes
- ☐ No

---

Did you pass your most recent cycle ergometry test? (select one):

- ☒ Yes
- ☐ No
- ☐ I did not test this past year because I was exempt or waived.

Select the month that you took your most recent fitness assessment:

January ▼

To your best recollection, what was your estimated VO2 max score? (VO2 units are ml/kg/min):

up to 20 ▼

How certain are you that you correctly recalled your score? (select one):

- ☐ uncertain
- ☐ certain
- ☐ very certain

---

Please use this space to add comments on policies or practices that you have regarding physical activity for your squadron members. Describe any incentives for physical activity or disincentives for physical inactivity. You may also elaborate and provide your opinions regarding your role as a squadron commander, physical activity and fitness for Air Force members.

prior to my annual fitness  
assessment.

☐ ☐ ☐ ☐ ☐ ☐ ☐

---

**Respond to each of the following Yes/No questions.**

*WBFMP is the Weight and Body Fat Management Program*

*SFIP/MFIP are the Self-paced Fitness Improvement Program and the Monitored Fitness Improvement Program.*

*I allow airmen on the WBFMP and SFIP/MFIP to use duty time for physical activity.*

- ☐ Yes  
☐ No

*I allow all airmen in my squadron to use duty time for physical activity.*

- ☐ Yes  
☐ No

*I encourage airmen on the WBFMP and SFIP/MFIP to use duty time for physical activity.*

- ☐ Yes  
☐ No

*I encourage all airmen in my squadron to use duty time for physical activity.*

- ☐ Yes  
☐ No

*I actively encourage airmen on the WBFMP and SFIP/MFIP to use off-duty time for physical activity.*

- ☐ Yes  
☐ No

*I actively encourage all airmen in my squadron to use off-duty time for physical activity.*

- ☐ Yes  
☐ No

*I require airmen in my squadron to participate in physical activity.*

- ☐ Yes  
☐ No

*I reward airmen in my squadron for participation in physical activity.*

- ☐ Yes  
☐ No